

AMENDMENTS TO THE CLAIMS

Please amend claims 1, 14, 21, 26, 44 and 48. Please cancel claims 4, 16, 28, 34-43, 47 and 51. Following is a listing of the claims, as amended.

1. (Currently Amended) A method for fastening components, comprising:
inserting an elongated member through a first hole in a first component and a second hole in a second component, with a head of the elongated member positioned at least proximate to the first component;
passing a collar axially over a helical groove of the elongated member without rotating either the collar or the elongated member prior to swaging the collar, wherein the collar has an outwardly projecting flange and a barrel adjacent to the flange, the barrel having a generally constant inner diameter and a generally constant outer diameter;
applying a liquid to the elongated member before swaging the collar;
swaging the collar to the helical groove of the elongated member by engaging the generally constant outer diameter of the barrel with an installation tool, with the first and second components positioned between the head and the collar, and with the collar positioned between the second component and a removable portion of the elongated member, and without removing the liquid from the elongated member; and
removing the removable portion of the elongated member.

2. (Original) The method of claim 1 wherein removing the removable portion of the elongated member is performed during, after, or during and after swaging the collar.

3. (Original) The method of claim 1 wherein inserting the elongated member through the first hole includes inserting the elongated member so that a first portion of the elongated member aligned with and received by the first hole has a diameter less than a

diameter of the first hole, and wherein inserting the elongated member through the second hole includes inserting the elongated member so that a second portion of the elongated member aligned with and received by the second hole has a diameter less than a diameter of the second hole.

4. (Cancelled)

5. (Original) The method of claim 1 wherein swaging the collar and removing the removable portion of the elongated member include engaging the removable portion of the elongated member with a first portion of an installation tool, engaging the collar with a second portion of the installation tool, and moving at least one of the first portion and the second portion axially relative to the other.

6. (Original) The method of claim 1 wherein inserting the elongated member includes inserting the elongated member through a first hole in a first composite aircraft component and inserting the elongated member through a second hole in a second composite aircraft component.

7. (Original) The method of claim 1 wherein the elongated member is elongated along an axis and wherein removing the removable portion of the elongated member includes applying a force to the removable portion generally aligned with the axis.

8. (Original) The method of claim 1 wherein inserting the elongated member includes inserting the elongated member to have an interference fit with at least one of the first hole of the first component and the second hole of the second component.

9. (Original) The method of claim 1 wherein inserting the elongated member includes inserting the elongated member without a tool, and with the elongated member having a loose fit in the first and second holes.

10. (Original) The method of claim 1 wherein inserting the elongated member includes inserting the elongated member with the head bearing against the first component.

11. (Original) The method of claim 1 wherein swaging the collar includes swaging the collar to bear against the second component.

12. (Original) The method of claim 1 wherein swaging the collar includes applying an axial force and a radially inwardly directed force to the collar, without applying a torque to the collar.

13. (Cancelled)

14. (Currently Amended) A method for fastening components, comprising:
inserting an elongated pin through a first hole in a first component and a second hole in a second component, with a head of the elongated pin positioned against the first component, the first hole having a first diameter greater than a diameter of a first portion of the elongated pin received in the first hole, the second hole having a second diameter greater than a diameter of a second portion of the elongated pin received in the second hole;
applying a fluid to the elongated pin;
passing a collar axially over a helical groove of the elongated pin without rotating either the collar or the elongated pin prior to swaging the collar, wherein the collar has an outwardly projecting flange and a barrel adjacent to the flange, the barrel having a generally constant inner diameter and a generally constant outer diameter;
swaging the collar to the helical groove of the elongated pin, after applying the fluid, and without removing the fluid from the elongated member, by engaging the generally constant outer diameter of the barrel with an installation tool, with

the collar positioned against the second component, and with the collar positioned between the second component and a third portion of the elongated pin;

breaking a connection located between the third portion of the elongated pin and the second portion of the elongated pin; and
removing the third portion of the pin.

15. (Original) The method of claim 14 wherein applying a fluid to the elongated pin includes applying a sealant.

16. (Cancelled)

17. (Original) The method of claim 14 wherein swaging the collar and removing the removable portion of the elongated pin include engaging the third portion of the elongated pin with a first portion of an installation tool, engaging the collar with a second portion of the installation tool, and moving at least one of the first portion and the second portion axially relative to the other.

18. (Original) The method of claim 14 wherein inserting the elongated pin includes inserting the elongated pin through a first hole in a first composite aircraft component and inserting the elongated pin through a second hole in a second composite aircraft component.

19. (Original) The method of claim 14 wherein the elongated pin is elongated along an axis and wherein removing the third portion of the elongated pin includes applying a force to the third portion generally aligned with the axis.

20. (Original) The method of claim 14 wherein swaging the collar includes applying an axial force and a radially inwardly directed force to the collar, without applying a torque to the collar.

21. (Currently Amended) A method for sealably fastening aircraft components, comprising:

inserting an elongated pin through a first hole in a first composite aircraft component and a second hole in a second composite aircraft component, with a head of the pin positioned against the first composite aircraft component, the first hole having a first diameter greater than a diameter of a first portion of the elongated pin received in the first hole, the second hole having a second diameter greater than a diameter of a second portion of the elongated pin received in the second hole;

applying a flowable sealant to the elongated pin;

passing a collar axially over a helical groove of the elongated pin without rotating either the collar or the elongated pin prior to swaging the collar, wherein the collar has an outwardly projecting flange and a barrel adjacent to the flange, the barrel having solid walls with a generally constant inner diameter and a generally constant outer diameter;

engaging a swaging tool with a third portion of the elongated pin, the second portion of the elongated pin being positioned between the first and third portions of the elongated pin;

swaging the collar to the helical groove of the elongated pin, without removing the sealant, by engaging the generally constant outer diameter of the barrel with the swaging tool so that the collar abuts against the second composite aircraft component, the helical groove being positioned between the third portion of the elongated pin and the second composite aircraft component;

breaking a connection located between the third portion of the elongated pin and the second portion of the elongated pin by applying an axial tension to the third portion while swaging the collar; and
removing the third portion of the elongated pin.

22. (Original) The method of claim 21 wherein swaging the collar and removing the removable portion of the elongated pin include engaging the third portion of the elongated pin with a first portion of the swaging tool, engaging the collar with a second portion of the swaging tool, and moving at least one of the first portion and the second portion axially relative to the other.

23. (Original) The method of claim 21, further comprising passing at least some of the flowable sealant along a helical path through the helical groove while swaging the collar to the helical groove.

24. (Cancelled)

25. (Original) The method of claim 21 wherein swaging the collar includes applying an axial and radially inwardly directed force to the collar, without applying a torque to the collar.

26. (Currently Amended) A fastening method, comprising:
inserting an elongated member through a hole in at least one component, with a head of the elongated member positioned at least proximate to the at least one component;
passing a collar axially over a helical groove of the elongated member without rotating either the collar or the elongated member prior to swaging the collar, wherein the collar has an outwardly projecting flange and a barrel adjacent to

the flange, the barrel having a generally constant inner diameter and a generally constant outer diameter;

applying a liquid to the elongated member before swaging the collar;

swaging the collar to the helical groove of the elongated member by engaging the generally constant outer diameter of the barrel with an installation tool, with the at least one component positioned between the head and the collar, and with the collar positioned between the at least one component and a removable portion of the elongated member, and without removing the liquid;
and

removing the removable portion of the elongated member.

27. (Original) The method of claim 26 wherein removing the removable portion of the elongated member is performed during, after, or during and after swaging the collar.

28. (Cancelled)

29. (Original) The method of claim 26 wherein swaging the collar and removing the removable portion of the elongated member include engaging the removable portion of the elongated member with a first portion of an installation tool, engaging the collar with a second portion of the installation tool, and moving at least one of the first portion and the second portion axially relative to the other.

30. (Original) The method of claim 26 wherein the elongated member is elongated along an axis and wherein removing the removable portion of the elongated member includes applying a force to the removable portion generally aligned with the axis.

31. (Original) The method of claim 26 wherein inserting the elongated member includes inserting the elongated member without a tool, and with the elongated member having a loose fit in the hole.

32. (Original) The method of claim 26 wherein swaging the collar includes applying an axial force and a radially inwardly directed force to the collar, without applying a torque to the collar.

33-43. (Cancelled)

44. (Currently Amended) An aircraft, comprising:
a first component having a first aperture;
a second component having a second aperture coaxially aligned with the first aperture;
an elongated member having a head portion positioned at least proximate to the first component, the elongated member further having a shaft portion extending through the first and second apertures, the shaft portion including at least one helical thread, the shaft portion further including at least part of a frangible portion that has been broken under an axial, tensile force; ~~and~~
a collar having an aperture into which the elongated member is received, the collar further having an outwardly projecting flange, and a barrel adjacent to the flange, the aperture extending through the barrel and being sized to slip axially over the at least one helical thread without rotating either the collar or the elongated member, the barrel having a generally constant inner diameter and a generally constant outer diameter, the collar being swaged onto the at least one helical thread of the elongated member; and
a sealant disposed on the elongated member to seal a connection between the first and second components.

45. (Original) The aircraft of claim 44 wherein at least one of the first and second components has a composite composition.

46. (Original) The aircraft of claim 44 wherein the first and second components include wing panels.

47. (Cancelled)

48. (Currently Amended) An assembly of components formed by a process, comprising:

inserting an elongated member through a first hole in a first component and a second hole in a second component, with a head of the elongated member positioned at least proximate to the first component;

passing a collar axially over a helical groove of the elongated member without rotating either the collar or the elongated member prior to swaging the collar, wherein the collar has an outwardly projecting flange and a barrel adjacent to the flange, the barrel having a generally constant inner diameter and a generally constant outer diameter;

applying a liquid to the elongated member before swaging the collar;

swaging the collar to the helical groove of the elongated member by engaging the generally constant outer diameter of the barrel with an installation tool, with the first and second components positioned between the head and the collar, and with the collar positioned between the second component and a removable portion of the elongated member, and without removing the liquid;
and

removing the removable portion of the elongated member by applying an axial tensile force to the removable portion to break a connection between the removable portion and a remainder of the elongated member, the remainder including at least part of a frangible portion that has been broken under the axial, tensile force.

49. (Original) The assembly of claim 48 wherein removing the removable portion of the elongated member is performed during, after, or during and after swaging the collar.

50. (Original) The assembly of claim 48 wherein inserting the elongated member through the first hole includes inserting the elongated member so that a first portion of the elongated member aligned with and received by the first hole has a diameter less than a diameter of the first hole, and wherein inserting the elongated member through the second hole includes inserting the elongated member so that a second portion of the elongated member aligned with and received by the second hole has a diameter less than a diameter of the second hole.

51. (Cancelled)

52. (Original) The assembly of claim 48 wherein inserting the elongated member includes inserting the elongated member through a first hole in a first composite aircraft component and inserting the elongated member through a second hole in a second composite aircraft component.

53. (Original) The assembly of claim 48 wherein the elongated member is elongated along an axis and wherein removing the removable portion of the elongated member includes applying a force to the removable portion generally aligned with the axis.